

## Freeform Search

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	Derwent World Patents Index
	IBM Technical Disclosure Bulletins

  

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**Generate:** ☐ Hit List ☒ Hit Count ☐ Side by Side ☐ Image

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### Search History

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**DATE:** Saturday, March 27, 2004   [Printable Copy](#)   [Create Case](#)

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<u>L51</u>	L50 and class	91	<u>L51</u>
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<u>L33</u>	L32 and meter\$ near network near usage	4	<u>L33</u>
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L3    communications near network  
L2    "rizzo, michael".in.  
L1    "brisco, robert".in.

133753    L3  
27        L2  
19        L1

END OF SEARCH HISTORY

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L36: Entry 1 of 1

File: USPT

Oct 19, 1999

US-PAT-NO: 5970050

DOCUMENT-IDENTIFIER: US 5970050 A

TITLE: Allocating communication traffic

DATE-ISSUED: October 19, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Johnson; David	Ipswich			GB

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB	03	

APPL-NO: 08/ 751775    [PALM]

DATE FILED: November 15, 1996

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	9608816	April 30, 1996

INT-CL: [06] H04 L 12/56

US-CL-ISSUED: 370/238; 370/351, 370/400

US-CL-CURRENT: 370/238; 370/351, 370/400

FIELD-OF-SEARCH: 370/231, 370/232, 370/235, 370/237, 370/238, 370/319, 370/322, 370/329, 370/341, 370/344, 370/347, 370/348, 370/351, 370/254, 370/400, 370/389, 370/401, 395/200.69, 395/200.71

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

Clear

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<input type="checkbox"/>	<u>4707832</u>	November 1987	Glenn et al.	370/489
<input type="checkbox"/>	<u>5163042</u>	November 1992	Ochiai	370/400
<input type="checkbox"/>	<u>5317566</u>	May 1994	Joshi	370/238
<input type="checkbox"/>	<u>5533016</u>	July 1996	Cook et al.	370/351

☐ 5649108      July 1997      Spiegel et al.      370/400

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
A2189111	October 1987	GB	

## OTHER PUBLICATIONS

Gersht et al, "NOM--A Tool For Optimal Design and Performance Evaluation of Routing Strategies and Its Application to the Telenet Network", IEEE INFOCOM '88, New Orleans, Mar. 27-31, 1988, No. 1988, Mar. 27, 1988, Institute of Electrical and Electronics Engineers, pp. 585-592.  
Schwartz, Telecommunication Networks, 1987, pp. 175-176.

ART-UNIT: 272

PRIMARY-EXAMINER: Nguyen; Chau

ATTY-AGENT-FIRM: Nixon & Vanderhye P.C.

## ABSTRACT:

Communication traffic is allocated through a network of interconnected nodes. A communication path may be established between terminals via a plurality of routes. Processors are provided for processing parameters for portions of a set of potential routes to determine a notional cost of using each of these routes. An optimal level of traffic is identified for each route portion and a parameter (such as notional route length) is adjusted to make use of the route more costly if the traffic for that portion exceeds the notional value and, in addition, if the traffic for the portion falls below the optimum value, a route is then selected with reference to route cost comparisons.

16 Claims, 12 Drawing figures

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L8: Entry 4 of 5

File: USPT

May 1, 2001

DOCUMENT-IDENTIFIER: US 6226265 B1

TITLE: Packet flow monitor and control system

Brief Summary Text (7):

Currently, discussions about an ABR (Available Bit Rate) service class are frequently made as a method for applying the ATM technique to a high-speed data communication network such as a LAN, a WAN, etc. In the ABR service class, congestion control is performed between a network and a terminal for each connection.

Brief Summary Text (89):

In a resource management cell in a forward direction, an allowed cell rate ACR calculated by the transmitting terminal is set in the CCR field of that cell. This allowed cell rate ACR is a rate at which a cell transmission is performed, notified to an ATM network by the transmitting terminal. Since a calculation algorithm of the allowed cell rate calculated by the transmitting terminal is the same as that of the allowed cell rate ACR calculated by the usage parameter control unit, both rates should be the same. Accordingly, if the two rates do not match as a result of a comparison made by the comparator, the mismatch is determined as an external fault and an alarm is transmitted.

Detailed Description Text (38):

For example, if an ATM network charges from a normal state to a congestion state, the first UPC 141 switches its operation state from B to A. At that time, the second UPC 142 switches its operation state from C to B. Note that the cell flow monitor and control system can determine a use-state of an ATM network (congestion state/non-congestion state) according to an RM cell received from the ATM network.

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L33: Entry 3 of 4

File: USPT

Feb 13, 2001

DOCUMENT-IDENTIFIER: US 6189101 B1

TITLE: Secure network architecture method and apparatus

Brief Summary Text (20):

It is a further object of the present invention to create individual network resources having a communications profile comprising certain types of communications which the network resource is capable of creating and certain types of communication (which may be different) which the network resource is capable of receiving.

Brief Summary Text (25):

It is a further object of the present invention to individualize encryption elements to effect a unique dialect in the form of a communications profile for communication with each network resource.

Brief Summary Text (36):

It is yet another object of the present invention to meter network usage in order to create use statistics, charge users for network resources used, to enable billing and to enable tracking instances of network vandalism and related network information.

Brief Summary Text (43):

The present invention comprises a central directory which establishes the identity and characteristics of other network resources of the system architecture. It is the function of the central directory to establish the method and type of communication to be established with various network resources, to assist in establishing profiles and the identities of the network resources by distributing communication and network resource profiles and to distribute cryptographic elements to the network resources.

Brief Summary Text (47):

Once the communications profile is generated, the CDIR stores the communications profile for later distribution to a new arbitrator, or if the profile is for a LLNR, for the distribution to the LLNR by the associated arbitrator. Through such storage of network resource communications profiles, the CDIR is able to reestablish communications on a network resource in the event the communications profile becomes unuseable.

Brief Summary Text (52):

Once the network resource is established on the network, it has a communications profile associated with the information and communications it can generate and put over the network, as well as a communications profile associated with the type of information it is authorized to receive. In addition each network resource has a unique identifier. Only communications that have precisely the correct identifying information and are of the type of communication permitted can be received by the LLNR. Similarly, the network resource cannot generate or transmit any communication not expressly permitted by its communications profile. In this fashion an individual network resource polices itself both from the standpoint of what information it can send, and what information it can receive. Further, any tampering with the network resource communications profile and identifiers changes

the LLNR to make both the sending and receiving of information impossible. This in turn triggers an automatic repair/update of the LLNR communications profile.

Brief Summary Text (53):

As further assistance to establishing integrity over the network an arbitrator (or plurality of arbitrators) serves as a second line of defense on the network to monitor the traffic that is coming from the network resources connected to it for purposes of metering usage, billing users, collecting statistics on use, and other statistics and to insure that it is the kind of traffic that the network resource is authorized to send. This is accomplished by the arbitrator maintaining an extensible database of profiles of all of those network resources with whom it most commonly communicates. Thus the communications profile of a particular network resource is generally mirrored at the arbitrator so that the arbitrator can then monitor traffic coming from the particular network resource. In a similar fashion the arbitrator can review the network resource communications profile in question so that traffic that is going to the network resource from other areas of the network is precisely the kind of traffic that the particular network resource is authorized to receive. If it is not then the arbitrator does not permit the communication traffic to reach the network resource. Thus network bandwidth is not wasted sending communications that cannot be accepted.

Brief Summary Text (68):

The LLNR also conducts a variety of activities. As noted earlier the LLNR performs its own internal checking on the communications it generates. When the LLNR requires encrypted communication with other network resources, it requests cryptographic elements from the arbitrator. Once received, the LLNR uses the cryptographic elements, which can be (but without limitation) a bit ring to process its outgoing message. The LLNR can also process incoming messages using the cryptographic elements to the extent that incoming communications passed to it by the arbitrator are encrypted.

Brief Summary Text (70):

Since a special procedure is required to establish anonymous communications with another network resource, the LLNR also generates requests to the arbitrator for such anonymous communications.

CLAIMS:

1. A secure network comprising:

a network;

network resources connected to the network each having a communications profile comprising at least a receive profile, a transmit profile, and unique identifier and whereby each network resource can receive communications only if permitted by its receive profile and whereby each network resource can transmit communications only if permitted by its transmit profile; and

at least one arbitrator with its own communications profile included in said network resources, wherein the arbitrator receives communications from transmitting network resources which are destined for destination network resources and retransmits the communication to the destination network resources.

3. The secure network of claim 1, wherein the at least one arbitrator includes means to meter usage on the network and to provide information to a billing authority for billing users for usage.

30. A method for establishing a secure communications network comprising:

establishing a communications profile comprising at least a receive profile, a



transmit profile, and unique identifier on each of a plurality of network resources including at least one arbitrator on a network;

transmitting communications from a transmitting network resource only if permitted by the transmitting network resource's communications profile; and

receiving communications by a destination network resource only if permitted by the destination resource's communications profile.

31. The method of establishing a secure communication network of claim 30 wherein the network resources comprise a plurality of arbitrators.

32. The method of establishing a secure communication network of claim 30 further comprising:

receiving by the arbitrator a communication transmitted by a transmitting network resource destined for a destination network resource; and

re-transmitting the communication to the destination network resource.

33. The method of establishing a secure communication network of claim 32 further comprising:

checking the received communication against the communications profile of the arbitrator;

accepting the communication for re-transmission if it is the type of communication permitted to be received by the arbitrator; and

rejecting the communication for further re-transmission if it is the type of communication not permitted to be received by the arbitrator.

34. The method of establishing a secure communication network of claim 30 further comprising:

storing in the arbitrator the communications profiles of network resources with which communication is permitted.

35. The method of establishing a secure communication network of claim 34 further comprising:

checking the communications profile of the destination network resource stored in the arbitrator;

rejecting re-transmission of the communication to the destination network resource if the communication is not of the type permitted to be received by the destination network resource; and

allowing re-transmission of the communication to the destination network resource if the communication is of the type permitted to be received by the destination network resource.

36. The method of establishing a secure communication network of claim 35 further comprising:

the network resource requesting cryptographic elements from the arbitrator when communications are to be encrypted.

37. The method of establishing a secure communication network of claim 36 wherein requesting cryptographic elements includes requesting a bit ring.

38. The method of establishing a secure communication network of claim 30 wherein establishing a communications profile on each of a plurality of network resources further includes establishing a plurality of workstations each with its own communications profile.

39. The method of establishing a secure communication network of claim 38 further comprising transmitting from a workstation certain types of communications only if permitted by the workstation's communications profile.

40. The method of establishing a secure communication network of claim 39 further comprising receiving certain types of communications only if permitted by the workstation's communications profile.

41. The method of establishing a secure communication network of claim 39 further comprising the workstation checking the communication to be received and permitting the reception only if the communication is of the type permitted by the workstation's communications profile.

42. The method of establishing a secure communication network of claim 38 further comprising the workstation checking the communication to be transmitted and permitting the transmission only if the communication is of the type permitted by the workstation's communications profile.

43. The method of establishing a secure communication network of claim 38 further comprising the workstation requesting cryptographic elements from the arbitrator when communications are to be encrypted.

44. The method of establishing a secure communication network of claim 43 wherein the cryptographic element is a bit ring.

45. The method of establishing a secure communication network of claim 43 further comprising the arbitrator requesting a cryptographic element from a central directory in response to the request for a cryptographic element from a workstation.

46. The method of establishing a secure communication network of claim 38 further comprising supplying cryptographic elements to the arbitrator from a central directory in response to a request from the arbitrator.

47. The method of establishing a secure communication network of claim 46 further comprising the central directory receiving batches of unique random numbers from a unique random number generator; and

generating bit rings from the unique random numbers received by the central directory.

48. The method of establishing a secure communication network of claim 47 further comprising the unique random number generator checking a unique random number database to ensure that the number generated is in fact unique;

storing unique random numbers generated in a batch file for transmitting to the central directory.

49. The method of establishing a secure communication network of claim 30, further including establishing at least one container comprising information for said network resources.

50. The method of establishing a secure communication network of claim 49 further comprising encrypting the information in the container.

51. The method of establishing a secure communication network of claim 50 wherein modifying the information in the container results in the container not being able to be decrypted.

52. The method of establishing a secure communication network of claim 49 including providing audio/visual data for said container.

53. The method of establishing a secure communication network of claim 49 including providing access privileges to other network resources for said container.

54. The method of establishing a secure communication network of claim 49 including providing binary data for said container.

55. The method of establishing a secure communication network of claim 49 including providing software for said container.

56. The method of establishing a secure communication network of claim 30 further comprising the arbitrator receiving a communication from a transmitting network resource;

the arbitrator encrypting the communication and retransmitting the encrypted communication to a network distribution resource;

the network distribution resource broadcasting the encrypted communication;

the arbitrator providing to a destination network resource a means to decrypt the encrypted communication broadcast from the network distribution resource.

57. The method of establishing a secure communication network of claim 56 wherein re-transmitting to a network distribution resource includes re-transmitting the communication to a satellite.

58. The method of establishing a secure communication network of claim 56 wherein encrypting the communication includes producing an encrypted bit stream.

59. The method of establishing a secure communication network of claim 56 including providing audio/visual data to said transmitting network resource for communication to the arbitrator, said encrypted communication comprising encrypted audio/visual data.

60. The method of establishing a secure communication network of claim 56 including providing binary data to said transmitting network resource for communication to the arbitrator, said encrypted communication comprising encrypted binary data.

61. The method of establishing a secure communication network of claim 56 including providing software to said transmitting network resource for communication to the arbitrator, said encrypted communication comprising encrypted software.

62. The method of establishing a secure communication network of claim 56 including providing financial data to said transmitting network resource for communication to the arbitrator, said encrypted communication comprising financial data.

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L34: Entry 16 of 22

File: USPT

Nov 5, 2002

DOCUMENT-IDENTIFIER: US 6477558 B1

TITLE: System for performing load management

Brief Summary Text (2):

The present invention relates to a data transmission system, and more particularly to a data transmission system for utility metering.

Brief Summary Text (3):

The development and commercialization of various utility products, such as electricity, water, and gas have contributed to dramatic advances in living standards. In allocating usage bills, utility companies typically gauge consumption using meters and bill their customers accordingly. Traditionally, at the end of a reporting period, a utility employee physically inspects and records each customer's meter readout dials which reflect usage. The recorded data is eventually entered into an accounting system for billing purposes. This process is labor intensive and duplicative. Moreover, the meter reading process may be disrupted by unplanned nuisances such as dogs and inclement weather. Further, this process cannot provide time-of-day metering so that the utility company can charge for the utility product as a function of load factors.

Brief Summary Text (4):

To overcome these inefficiencies, remote meter reading systems have been developed which automatically capture consumption data from the field. In situations which cannot afford dedicated lines or connections to the plain old telephone service (POTS), wireless meter reading systems have been deployed. Typically, such a wireless meter reading system includes a base station which transmits on one frequency to a remote station, which in turn may relay the transmission to other remote stations. The base station also receives data from the remote stations on the same or related frequency. The wireless transmission of data between the base and remote stations is determined by the licensing rules of a government regulatory authority such as the Federal Communications Commission (FCC) in the United States or the Radio-Communications Authority (RA) in the United Kingdom (UK).

Brief Summary Text (5):

Generally, the authority grants licenses to operate radio transmitters that have to operate within a limited frequency spectrum. For instance, in the UK, a spectrum between 183.5 MHz and 184.5 MHz is reserved for metering applications. The band is in turn divided into eight 25 kHz channels and four 200 kHz channels. Similar frequency allocations are also enforced in various other countries which reserve a band of frequencies for various applications such as meter data collection.

Brief Summary Text (6):

Due to the limited frequency spectrum, data transmission needs to be within a narrow range such as within about 100 kHz of a predesignated transmission frequency. Since the wireless meter reading system deploys many more transmitters than receivers in forwarding usage statistics to a utility company's central location, each transmitter needs to be made as economically as possible. Typically, the most expensive component in the transmitter is a quartz crystal resonator which controls the transmission frequency.

Brief Summary Text (14):

Advantages of the invention include one or more of the following. The meter data transmission system is reliable in the field and free of transmission variations induced by aging and temperature variations. Repeatability is enhanced as the system does not depend on component tolerance. The system requires virtually no calibration or alignment with respect to its operating frequency. The system is robust to minor frequency variations and requires less time and effort to manufacture as well as to install in the field. The system has a low power consumption. Certain additional functionality may be programmed using the system's processor and memory without requiring additional circuitry.

Drawing Description Text (2):

FIG. 1 is a schematic diagram illustrating a physical network configuration of a meter data transmission system in accordance with the present invention.

Detailed Description Text (3):

As shown in FIGS. 1 and 2, each utility usage node 100 such as an electricity, gas or water meter, is connected to wireless telemetry monitoring module 40. Each module 40 collects usage information from its associated meter or end-point and wirelessly forwards that information over a transmission network, which ultimately reaches database 16 located at, for example, a central monitoring station. Monitoring module 40 may have a transmit-only capability, or may have both transmit and receive capabilities compatible with the rest of the system. Such two-way communications may support, for example, capabilities for receiving usage information and/or diagnostic information. The usage or consumption data transmitted in each transmission may also include redundant data previously transmitted to improve reliability so that the module transmissions can be used for advanced monitoring functions as described below.

Detailed Description Text (4):

The transmission network is generally configured as a series of wireless local area networks (LANs) 38 with inter-network communications supported by wide area network (WAN) 26. WAN 26 may be wireless or may be wired using land-lines. Typically, wireless telemetry monitoring module 40 communicate with a nearby LAN host called microcell controller (MCC) 30, 32, 34 or 36. The combination of monitoring modules 40 and MCCs 30-36 define LAN elements of the network. Each of MCC 30-36 has a well-defined group of monitoring modules to which is provided local area network services. Each of MCCs 30-36 requires WAN services in order to connect with system controller 20, where telemetry data is ultimately processed.

Detailed Description Text (7):

Turning now to FIG. 3, receiver 100 for the MCC is shown. The receiver detects and demodulates the meter transmissions from meter modules 40 and then passes received messages to a processor in the MCC. Through an RF front-end, data is converted from a continuous analog signal to a digitally sampled version. The RF front-end can include one or more of the following: down converter 104, local oscillator 106, summer 112, shaped noise source 114 and under sampling circuit 116. For diversity purposes, a second RF front-end is used, and the second front-end can include one or more of the following: down converter 110, summer 122, shaped noise source 124, under sampling circuit 126, and multiplexer 118.

Detailed Description Text (8):

Data is received periodically at random and on a random frequency within an allocated 100 KHz bandwidth, for example. A protocol deals with message collisions in time and frequency from meters that are in the same cell as well as in adjacent cells. Receiver 100 can receive in parallel data transmitted at arbitrary frequencies within a radio channel.

Detailed Description Text (13):

The initial task of receiver 100 is to detect the presence of a transmission from

module 40. As discussed above, certain countries reserve a band of frequencies for metering applications. The band is in turn divided into various channels. In order to make use of the narrow bandwidth of the signal transmissions, the total number of channels is split into a number of sub-channels, thereby matching the noise bandwidth in each sub-channel to the signal bandwidth. The channel division is done with a Fast Fourier Transform (FFT) which in effect, implements a fixed bank of filters, each with the response of the FFT window function. The sampled waveform is transformed from a time domain to a frequency domain using the FFT. The FFT of an impulse sequence in the time domain is an impulse sequence in the frequency domain with spacing equal to that of the sampling frequency.

Detailed Description Text (70):

Transmitter 800 generates data signals at a bit rate of approximately 1.75 kbit/sec using BPSK modulation. These signals occupy an effective bandwidth of about 3.5 kHz. Transmitter 800 transmits data at a random time and on a random frequency within the allocated 100 kHz bandwidth. A protocol deals with message collisions in time and frequency (from meters in the same and adjacent cells) such that a signal received at a base station might contain many messages which are unsynchronized in time and modulated on a range of random frequencies. When operating with the receiver discussed above, the system supports a plurality of simultaneous transmissions, assuming that the transmission start time is random and uniformly distributed. Further, the system is designed to allow the transmitter to operate over a 100 kHz band, without the requirement for accurate transmitter frequency tolerance. By finely sub-dividing the band at the receiver, a signal can be resolved at any point within the 100 kHz.

Detailed Description Text (71):

Allowance for transmitter frequency tolerance is made by factory configuration to set the transmit limits to a band centered in the receiver's passband. A margin allowed at each end of the passband gives provision for both temperature drift and ageing of the reference crystal. Since both temperature and ageing drift are randomly positive or negative, a population of meters will, over time and temperature, expand to cover the full passband.

Detailed Description Text (91):

Since only one MCC is required to serve a monitoring module, and since redundant MCC service of the monitoring modules is inefficient, the MCC is coordinated by the system controller to eliminate any redundancy that may occur in the effective coverage areas. This coordination is as follows: the first time an MCC receives a transmission from a specific monitoring module, that Tracking MCC begins to process the signals from the module in order to measure the effective signal strength and estimate the radio link reliability for that monitoring module. This generally takes less than four hours. After doing so, that tracking MCC transmits a signal to system controller including information identifying the newly discovered monitoring module (the meter network address), the determined signal strength (the average received signal level), and the reliability of transmissions (the transmission statistics) received by that Tracking MCC from that monitoring module.

Detailed Description Text (94):

For each monitoring module, there may be at least basic meter reading data within the tracking MCC's database. In addition to this basic service any of the other services may be provided by that MCC in which case the appropriate data as described above may be accumulated within the MCC's object database. Shortly after midnight each day, the system controller may read this database to recover the "snapshot buffer" which is then provided to the system controller load profile databases.

Detailed Description Text (95):

The services described above relate to the processing of usage data contained within the regular and periodic transmissions emanating from the monitoring modules

every few minutes. In addition to these regular metering services, the network can also provide certain "event handling" services that detect and process transmissions that contain data representing events that occurred at the monitoring module. An event record is created in the MCC object database to keep track of the events. For example, a power outage event triggers the transmission of a Loss-of-Communication message by the monitoring module 40. The transmission containing this message is identified by a specific message type so that the tracking MCC that receives the transmission will process it as an event. In the case of the Loss-of-Communication event, the MCC may record the total number of such events received from its monitoring modules and then create an event summary in the MCC object database, which is subsequently sent to the system controller indicating that a Loss-of-Communication has occurred.

Detailed Description Text (96):

Both the routine meter data processing and the event handling functions make use of the MCC's object database services which contain the monitoring module data attributes in a "meter object." Some of the attributes of the meter object may be: 1. Monitoring network address 2. Meter identifying number 3. Total measured usage 4. Total measured usage in TOU periods 5. Peak demand for each TOU period 6. Usage charge rate schedule (specifies TOU and demand algorithms) 7. Average received signal level 8. Transmission statistics 9. Event status fields and counters 10. Diagnostic and error status fields

Detailed Description Text (98):

Since a monitoring module transmission is processed by a single MCC, the network processing resources are conserved. Similarly, since only one MCC stores a meter object for a specific monitoring module, the network's distributed database memory resources are conserved.

Detailed Description Text (99):

A virtue of a transparent WAN solution lies in the flexibility to substitute alternative WAN services and technologies when appropriate. The system controller manages the metering operations of each MCC by reading from and writing to the MCC object database 58 (FIG. 20). Usage data processing may be specified by writing to the specific rate schedule attribute of the object in the tracking MCC, while the usage information may be read as usage attributes for a number of monitoring modules 40 from the MCC's object database. These exchanges may be performed from the system controller using the specific query language developed for the distributed object database. These queries may be initiated at the system controller (client process) and passed to the MCC object database query process 60 using the distributed messaging services of the WAN.

Detailed Description Text (100):

In the case of a daily usage reading operation, the system controller may initiate a query to each MCC database 58 requesting all of the "snapshot buffer" usage data described earlier. This query may be performed separately for each class of service (basic and load profile). The query process in each MCC then accumulates the object data responsive to the specific query and compresses the data for efficient transmission to the system controller. The data contained within these query responses may be stored in the system controller database to account for meter usage. Each query and response may be conducted using the Distributed Messaging System (DMS) services which specifies the methods and protocols for transmission of data over the WAN portion of the network.

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L34: Entry 21 of 22

File: USPT

Jul 7, 1992

DOCUMENT-IDENTIFIER: US 5128988 A

TITLE: Telephone-switched network, automatic meter-reading system based upon service addressBrief Summary Text (2):

The present invention is directed to an automatic system for the remote-reading of utility meters, and the like, over the switched telephone-network. It is known to remotely-read utility meters, such as water, gas, and electric. There are various methods for achieving such remote-reading, such as by radio waves, CATV, power-transmission line accessing, and utilizing the switched telephone-network. The present invention is directed to an improved remote-reading system employing the switched telephone-system.

Brief Summary Text (3):

Presently-used remote-reading, switched telephone-systems are operated such that each utility requiring the remote-reading is equipped with a dedicated computer system, typically including a P.C., which contains a listing of all of its customers by account number, physical address, and telephone number. The utility's computer system communicates, by modem, with a telephone company's central-office, automated meter-reading system, which is a trunk-access controller (T.A.C.), that automatically routes an inputted telephone number from the utility system to the subscriber-line loop--or tip and ring lines--at the physical customer-site associated with the particular telephone number. The TAC is central office (CO) equipment that provides a means of controlling a CO-switch test-trunk by a remotely-located computer operated by utilities. The TAC receives the meter reading request from the remote computer, and uses the test-trunk to access the customer's telephone line whose meter is to be read. The test-trunk is used to establish access to the customer's exchange line without ringing or interfering with the customer's use of the line. The access-controller will monitor the line before access to determine if the line is in use; if it is, the telephone number will be repositioned to the end of the program. Also, the access-controller will monitor the line during the read sequence to determine if the end user requests dial tone; if the end user does, automatic meter-reading (A.M.R.) service will be terminated, and the end user will receive immediate dial tone. At that customer-site, there is provided an automatic "Meter Interface Unit" (M.I.U.) which, upon actuation by a signal sent thereto by the utility's computer system via the T.A.C., will "read" the current reading of the four dials, for example, of the meter, and will transmit such reading back to the utility's computer system by the switched telephone-network by means of the T.A.C. Each customer-premise is equipped with this Meter Interface Unit (MIU). The MIU is installed on the customer side of the protector or standard network interface (SNI), and is considered customer-premises equipment (CPE). The MIU is a compact communications device that is connected as a non-ringing extension on the customer's existing phone line. Typically, the MIU can read up to four meters and transmit the data over the exchange line. The MIU can be wired in tandem (up to four) to read 16 meters over one POTS line. At the request of the utility, the access controller sends a "wake-up" tone to the MIU using the test trunk of the CO switch. The MIU "wakes up", reads the ports associated with the meters, and sends the meter-reading data, with other identifying status data, transparently through the access controller to the utility. A meter-encoder is a device that is owned, installed and maintained by the utility. The meter-encoder is



attached to electric, gas and water meters; it can be factory or field installed. The encoder remains dormant until activated by the MIU. When activated, the encoder takes a live read, and passes it to the data-collection center. An example of such a system is set forth and explained in depth in the publication entitled "Ameritech Automatic Meter Reading Services Interface Specifications", published by Ameritech Services, Inc., of Arlington Heights, Ill., which is incorporated by reference herein. This publication clearly sets forth the operations, protocol, and the format and control messages of the access and command messages between the utility's computer system and the telephone company's trunk-access controller, as well as between the utility's computer system and the information routed to it from each meter-interface unit at each customer-premise via the trunk-access controller. The AMR software loaded in the utility company's computer receives the data, checks the validity and enters it in the data base for that particular customer. The reading process from the time the TAC receives the customer's telephone number until the data is returned to the utility's computer is approximately 8 to 12 seconds.

Brief Summary Text (4):

AMR service requires a meter equipped with an encoder and an MIU connected to the telephone line via RJII modular jack or the Standard Network Interface (SNI). The existing telephone circuit will provide line-power for the encoder plus provide access for the utility to read the meter.

Brief Summary Text (6):

1. Utility programs the utility computer to read 1,000 meters at midnight;

Brief Summary Text (15):

Local telephone companies and long distance carriers maintain one or more computer data-base systems which contain current information pertaining to their customers. These database systems are used to support directory-assistance services, emergency-telephone services (911), customer billing, internal-line assignment and maintenance services, etc. The information contained in these data-base systems can include the address at which telephone service is furnished, and the current, switched-network telephone number or numbers that are assigned to, and operational at, the service-address. By enabling access to, and searches of, these data bases by address, the present invention relieves the vendors of other telephone-based services, such as automatic meter-reading, energy-management, telemarketing, and the like, from the burden, cost, delay, and inaccuracies associated with maintaining separate, proprietary data bases for customer telephone numbers. Automatic Meter Reading (AMR) allows a utility to electronically enter an end user's premises to retrieve The current consumption data, without disturbing the end user. The utility can access the telephone-company's central office for interrogation of the end user's utility meters; this action is completed without ringing the phone.

Brief Summary Text (17):

It is the primary objective of the present invention to provide a means of correlating street addresses to the public switched telephone network number or numbers which are assigned to and operational at the addresses.

Brief Summary Text (18):

It is another objective of the present invention to provide a means of correlating street addresses combined with additional location information such as apartment suite, floor, building, locality, or other designators to the public switched telephone network number or numbers which are assigned to and operational at the combined addresses.

Drawing Description Text (3):

FIG. 1 is a block diagram of the automatic meter-reading system of the invention in which there is incorporated a telephone-number administration controller for

accessing a telephone company's data base in order to convert a customer-premise-address input thereto to a telephone number for the respective address;

Drawing Description Text (4):

FIG. 2 is a flow chart showing the operation of the system of FIG. 1 from initial access by a utility company's system to the gathering of data from a meter via the meter-interface unit at the premises;

Detailed Description Text (2):

Referring to the drawings in greater detail, the automatic meter-reading system of the invention is shown generally in FIG. 1. The overall operating system includes a utility user 10, such as a water department, electric or gas utility company, and the like, who desires to read a meter or meters at a customer-premise or site via the switched telephone-network, whereby a meter-interface unit, or M.I.U., 12 provided at a customer-premises or site may be "read". The utility user 10 also has a data base 14 in which is stored customer account numbers, physical addresses of the customers, and may include the telephone numbers of the customers, and the like. The utility user 10 also has a dedicated computer system, such as a P.C., for communicating with the remainder of the system of the invention, by modem-transmission. A trunk-access controller, or T.A.C., 16 is also part of the overall system, which controller provides the switched connection between the utility user's computer system and each target meter-interface unit, or M.I.U., over the switched telephone-network. The above-described components of the system are presently used for the remote-reading of utility meters via the switched telephone-network, as set forth in the publication entitled "Ameritech Automatic Meter Reading Services Interface Specifications" published by Ameritech Services, Inc., of Arlington Heights, Ill. As set forth above, the limitations of such prior-art system is the fact that up to 30% or more of telephone numbers change every year, so that a utility user remotely-reading the M.I.U.'s of its operations, will, on average, experience a 30% or more failure rate of automatic meter-reading via the switched telephone-network. The present invention has overcome this problem by accessing each M.I.U. of the utility customer's operations based on physical customer-address, rather than on telephone number, since the actual location of each M.I.U. does not change. Toward this end, the system of the present invention includes a number-administrator controller, or N.A.C., 20, which intercedes between the utility user's dedicated computer system and the trunk-access controller 16. The telephone-number administrator controller is coupled to a telephone-company data base 22, via modem-transmission, which data base includes a number of standard data files, such as data base file 24, which may be the "Directory-Assistance Service" data base, which not only has the telephone number of each telephone subscriber, but also the address associated with each one. Thus, according to the invention, a utility user 10, such as a gas company, will access a respective M.I.U. by inputting the service-address to the N.A.C. computer system, which, in turn, will communicate with the telephone company's data base 22, and extract therefrom the telephone number associated with the service-address input received from the utility user. Having determined the telephone number corresponding to the target service-address, the N.A.C. will then direct the trunk-access controller, or T.A.C., to the proper switching state, in order to connect the user system 10 to the target M.I.U., whereupon, the M.I.U. is interrogated in the conventional manner, and the information thereof sent back to the user system 10 through the N.A.C.

Detailed Description Text (6):

FIG. 2 shows in more detail the operation of the system of the invention. At the start of the automatic reading session (Block 30), the utility user's system will transmit a call via modem to the system N.A.C. in order to Log-on (Block 32). The N.A.C. will then disconnect and call the user's system back (Block 34), for security purposes, and will also call the telephone company's data base and Log-on to it (Block 33). The user's system will then send the conventional set-up commands to the N.A.C., which, in turn, will send the commands to the T.A.C. (Blocks 36, 38).

When this initiation-procedure has been completed, the user's system will send the first service-address whose M.I.U. is to be interrogated to the N.A.C. (Block 40), whereupon, the N.A.C. will send the service-address to the telephone company's data base (Block 42). A reverse-lookup is performed, and the data base will send the telephone number associated with that service-address to the N.A.C. (Block 44), which, in turn, sends the telephone number to the T.A.C. (Block 46). The T.A.C. accesses the subscriber-line and causes the M.I.U. to be actuated (Block 48), which M.I.U. transmits the meter data-reading through the T.A.C. to the N.A.C., which sends it to the utility user's system (Block 50). The process is repeated until all of the service-address inputs have been completed. In the case where the N.A.C. of the system of the invention will generate its own reference-table, as described above, then the blocks 42 and 44 are performed only during the first, or initial, automatic meter-reading for the respective utility user. Thereafter, the N.A.C.'s own reference-table will generate the necessary telephone number and switching code for the T.A.C., as explained above. In this type of system, the N.A.C. will communicate with the telephone company's data base only when a M.I.U. associated with a respective telephone number was not accessed. The N.A.C. will then access the telephone company's data base to see if the telephone number for that respective service-address has been changed since the last updating of the N.A.C. reference-table. If such a change did in fact occur, then the N.A.C. will update its reference-table, and retry the connection based thereon.

Detailed Description Text (7):

The number-administrator system (N.A.C.) of the invention performs three essential tasks, as shown in FIG. 3. The first task starts with Blocks 52-58, which includes Log-on, call-back, etc., with the utility user's system, as discussed previously. When a user command has been received (Block 58), the N.A.C. will determine if the command is a "service-address" command (Block 60), in which case the N.A.C. will route to the second, or intermediary, task performed thereby, which is the reverse look-up routine, for calling up the telephone number from the telephone company's data base, as set forth above. This second routine is indicated by Blocks 62 through 74, with Blocks 62-68 being initialization of modem-connection between the telephone company's data base and the N.A.C. When the "Service-Address" command has been received by the N.A.C. (Block 60), then it determines if the address message has been received (Blocks 68, 70), upon which, the look-up command to the telephone company's data base is initiated, with that telephone number being sent by the N.A.C. to the T.A.C. in carrying out the third task thereof (Blocks 76, 78). This third applications task will then wait for a response from the T.A.C., which response is the meter-reading information provided by the M.I.U. at the target site (Blocks 80, 82). This "reading" is then transmitted by the modem-connection to the utility user's system (Blocks 84-88), with the utility user's computer system storing such information for billing, etc. If the command from the utility user's computer system (Block 58) is not a service-address command, but rather the conventional telephone-number command, then the intermediate, or second, task (Blocks 62-74) is not necessary, and the N.A.C. will simply act as a transparent conduit to the T.A.C. (Blocks 60, 76, 78), completely bypassing the second, or intermediate, steps shown in Blocks 68-74.

Detailed Description Text (10):

FIG. 4 is a memory-map of the number-administrator controller. 256K of nonvolatile random-access memory, or RAM, is used for application tasks. Until 00400H, the interrupt vectors are stored, with the remaining first 128K thereof being used for storing the application tasks discussed above in detail. The second 128K of the nonvolatile random-access memory--from address-locations 20000H to 40000H--are used for storing the telephone-number/service-address generated after the first complete cycle of automatic meter-reading of all of the M.I.U.'s of the utility. This reference-table also includes the "pair-gain" information, discussed supra, which information is needed by the trunk-access controller when switching to a subscriber-line center. This "pair-gain" information may either be obtained from the one of a plurality of telephone-company data bases accessed and used during the

look-up routine, or, if the "Directory-Assistance Service" data base is used, such "pair-gain" information will be generated the first time the respective M.I.U. is being accessed, as explained, with a "pair-gain"-flag being generated if the attempt without such flag has proven unsuccessful. The N.A.C. of the invention also has an erasable-programmable read-only memory, or EPROM, for storing the codes of: BIOS, reset/initialization, multi-tasking kernel to execute tasks 1, 2 and 3 of FIG. 3., as well as a downloader routine, for remotely program ming the N.A.C. with new routines. The above-mentioned codes occupy 64K, from address-locations F000H to FFFFFH. Nonvolatile RAM from C0000 to F0000 is free for future expansion.

Detailed Description Text (13):

The other commands-messages sent by the utility user are conventional, as set forth in the publication entitled "Ameritech Automatic Meter Reading Services Interface Specifications", published by Ameritech Services, Inc., of Arlington Heights, Ill.

Detailed Description Text (16):

While the above-description has concentrated on automatic meter-reading, the system of the invention also has wider application. The system of the invention has use in telemarketing, where sales-organizations would request telephone-listings for specific addresses in targeted neighborhoods, non-published numbers being eliminated. In addition, the system may be used in credit-checking, where small businesses could verify the correctness of a telephone number, i.e. after the customer supplied the number on the back of a credit application, check or invoice. The proprietor would call the N.A.C. of the invention, and input the address and telephone number; if correct, a proper signal would be returned.

Other Reference Publication (2):

"Ameritech Automatic Meter Reading Service Interface Specifications", Ameritech Services, Inc., Mar. 1989.

CLAIMS:

1. A system for the automatic meter-reading of customer-premise equipment comprising:

a utility user's computer system;

switch-controller means of a telephone company for achieving switched connection to the customer-premise equipment for actuating the customer-premise equipment for taking the reading of at least one meter at the customer-site; and

number-across controller means in operative communication between said utility user's system and said switch-controller means for intermediating between said utility user's system and said switch-controller means;

said utility user's system comprising means for generating and sending customer-address message commands to said number-access controller means;

said number-access controller means comprising first means for receiving said message-commands;

a telephone-company data base comprising correlated data of telephone-number/customer-address for each telephone line serviced thereby;

said number-access controller means also being in operative communication with telephone-company data base, and further comprising second means for extracting a respective telephone number from said telephone-company data base corresponding to a customer-address represented by said utility user's system's message-command;

said number-access controller means comprising third means for transmitting said

respective telephone-number to said switch-controller means, whereby said switch-controller means may thereby perform the necessary switching operations for coupling said number-access controller means to the respective customer-premise equipment for actuating said equipment to obtain a reading of a meter thereat;

said number-access controller means further comprising fourth means for storing in memory all of the telephone-number-customer-address pairs of the customer-sites of said utility user, after having looked up each said telephone-number one time from said telephone-company data base.

NAME  
BRITISH TELECOMM

COUNTRY  
GB

APPL-NO: EP87309818  
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PRIORITY-DATA: GB08626786A (November 10, 1986), GB08723794A (October 9, 1987)

US-CL-CURRENT: 65/433  
INT-CL (IPC): C03B 37/16  
EUR-CL (EPC): G02B006/25

ABSTRACT:

CHG DATE=19990617 STATUS=O> Apparatus for cleaving an optical fibre comprises two hand-operated pivotted jaws (11 and 12). The optical fibre (15) is supported along the lower jaw (12) and held by resilient clamps (24 and 27) on the upper jaw (11) when the jaws are closed. A blade (18) is resiliently coupled to the upper jaw on a parallelogram linkage (20) and protrudes beyond a stop member (21) by an amount substantially equal to the intended depth of intrusion of the blade into the fibre. Closure of the jaws brings the blade against the fibre which it scores to a depth limited by the stop member (21) on the upper jaw (11) bearing against the upper surface of the fibre (15), and by yielding of the blade (18). The resilient mounting (20) of the blade (18) is such that the maximum force which can be applied to the blade is the amount required to produce a score of the desired depth. Further closure of the jaws then applies a longitudinal tension to the fibre to produce cleaving.

Full	Title	Citation	Front	Review	Classification	Date	Reference	SEQUENCES	Abstracts	Claims	KWIC	Draw. Data
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☐ 18. Document ID: US 2951309 A

L1: Entry 18 of 19

File: USOC

Sep 6, 1960

US-PAT-NO: 2951309  
DOCUMENT-IDENTIFIER: US 2951309 A

TITLE: Aerating and cooling apparatus for liquid containing receptacles

DATE-ISSUED: September 6, 1960

US-CL-CURRENT: 43/57; 261/121.2

DOCUMENT TEXT:

Sept. 6, 1960 R. G. BRISCOE 21951@309 AERATING AND COOLING APPARATUS-FOR LIQUID CONTAINING RECEPTACLES Filed April 6, 1959 4r, 47 c 41 14: 23 -zi 2 -7r-- -10 Izi 54- -50 51 Z s 3 1 4 . .5 34 G G 54 Bs -- -Y-Aff. 4 5i G4- 28 35,z -Zs/ 70 51 G5 - 70 61 So -71 55 57 7z 15 -57 0 rot 31 INVENTOR BY ATTORNEY

Util'ted States Patetit Office 21951@309 2 951,309; AIERATING AND COOLING APPARATUS FOR LIQUJID CONTADQING RECEPTACLES Robert G. Briscoe, W. 18th and Wynnewood, Sulphur, Okla. Filed Apr. 6, 1959, Ser. No. 804,487 9 Claims. (Cl. 43-57) This invention relates to aerating pump minnow buckets and more specifically to the pump

and pumped liquid distribution apparatus thereof. An important object of the invention is to provide a portable apparatus for insertion into a conventional receptacle, as a minnow bucket, for not only aerating the water therein but also cooling the water, somewhat in the same manner as a waterfall aerates and cools the water into which it falls. Another important object is to provide such apparatus which, while it contains movable parts, is so constructed that the live bait, as minnows, is protected from all of the moving parts so the bait will not become injured thereby. Still another important object is to provide aerating and cooling apparatus as described which depends upon an upward flow of water through a pump housing and the discharge of the pumped water, as a thin sheet of droplets of falling water, well above the level of the water in the receptacle, so that the water will be cooled and well aerated, since provision is made for the access of outside air into the receptacle for contact with the falling water. A further important object is to provide an apparatus which is exceptionally small in bulk so that a large part of a conventional minnow bucket chamber is left free for the water and live bait. In addition, an important object is to provide an apparatus as described which is light in weight but does not require means, as clamps, latches, bolt and nut assemblies or the like, to mount it upon a conventional minnow bucket, but may be disposed upon the rim portion of the top wall thereof, free to be simply lifted off when it is desired to remove the same. Other objects and advantages of the invention will be apparent during the course of the following detailed description of the invention, taken in connection with the accompanying drawing, forming a portion of this disclosure, and in which drawing: 'Fig. 1 is a vertical sectional view of the apparatus of this invention, mounted upon and projecting into a receptacle containing a liquid. Figs. 2, 3 and 4 are horizontal sectional views of the apparatus taken on their respective lines of Fig. 1, but of the apparatus removed from the receptacle and water of Fig. 1. In the drawing, wherein for the purpose of illustration is shown a preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views, the letter A designates a receptacle; B, liquid within the receptacle; and C, the apparatus of the invention. The receptacle A may be of any approved kind, such as a conventional minnow bucket, with side wall 10, bottom wall 11, top wall 12, provided with a central opening 13 and closure 14, which may be hinged, as at 15, to the top wall. In such buckets, the central opening is patented Sept. 6, 1960 2 generally large, and the chamber 16, within the receptacle, is roomy and is adapted to contain a liquid B, preferably fresh water, and live fish (not shown), as minnows, for example. 5 Included in the apparatus C are major or upper support means 20, minor or lower support means 25, and connecting means 30 between the means 20 and 25. The major or upper support means 20 preferably comprises a substantially flat substantially circular disc body 21, providing a closure or cover, having a central opening 22, a plurality of spaced-apart air passageways or openings 23 spaced concentrically about the opening 22, and a resilient rim portion 24, as of rubber, about the outer periphery of the disc body 21, which rim portion 24 is adapted to removably rest upon the upper face of the top wall 12, with the passageways 23 in communication with the chamber. The central opening accommodates a portion of a shaft 42, and a portion of a pump housing 51, both to be referred to subsequently. 20 The resilient material of the rim portion 24 tends to frictionally grip the top wall 12, when weight is applied to the disc body 21 and prevents shifting of the latter, as well as provides a cushion and prevents marring of the wall 12. The disc body may be of steel or aluminum 25 for example. As part of the means 40 I may provide any suitable source of power. For example, by way of electric leads 46 and 47 and conventional electric connectors secured thereto, I may tap electric current from the electrical 30 system of a motor vehicle (not shown) or from a storage battery or storage batteries (also not shown). - Spaced below the major support means 20 is the minor or lower support means 25 which is preferably a substantially circular disc body 26 preferably having a central concavity 27 but with a convex downturned rim portion 28 with a preferably rounded edge. The disc body 26 is disposed adjacent the bottom wall 11. The disc body 26 may be of metal, such as aluminum or stainless steel, for example, with some resiliency. 40 Connecting means 30 connect

the disc bodies 21 and 26 in spaced-apart relationship, and preferably comprises a plurality (as three) of substantially equally spaced apart elongated members 31, such as rigid rods or stout wires of aluminum or stainless steel. Their preferably 45 vertically extending upper end portion 32 may be provided with screw threads to receive conventional nuts 33 and these upper end portions extend upwardly through suitable openings just large enough in diameter to snugly receive them, in the disc body 21 preferably spaced 50 outwardly of the passageways 23. Each of the upper end portions 32 extends downwardly for a portion of its length, and the member 31 then forms a lower end portion 34 which preferably extends gradually toward the longitudinal axis of the apparatus C and their terminal portions 35 are secured to the disc body 21 at the rim portion 27. This may be effected by providing suitable spaced apart openings through the rim portion to snugly receive the terminal portions 35 and the terminal portions then upset, as is apparent in Fig. 1, where it can be readily appreciated that the rim portion 27 tends to resiliently hold the upset portions securely. The portions 32 and 34, at their juncture, form a shoulder or angle and, at the apex thereof, the receptacle 71 (to be 65 subsequently described) is supported by the connecting means 30, so that the receptacle will not move, downwardly. Mounted upon the disc body 21 of the support means 20 may be any suitable impeller-rotating means 40. In the example shown, this means may comprise an electric motor with the housing 41 thereof bolted to the disc body 21 to extend upwardly therefrom and with

3 the shaft 42 extending through the opening 22 and downwardly thereof I prefer to provide a suitable resilient means 43, as a sheet or block of rubber or the like, interposed between the housing 41 and disc body 21 which may be provided with a central opening to accommodate the shaft 42 and suitable spaced-apart openings to accommodate conventional screw threaded bolt shanks 44 extending from the housing 41, then through the spaced-apart openings in the sheet or block of the means 43, and through axially-aligned openings in the disc body 21, with their projecting ends receiving suitable nuts 45. Such mountings are conventional for supporting electric motors and the like. Referring next to the pump means 50, the same includes an elongated tubular housing 51 comprising an upper portion 52 and a lower portion 53, with the former provided with an outwardly-extending flange 54 disposed upon the upper face of the disc body 21 at the opening 22. The lower portion 53 may be telescoped with the upper portion 52, to provide a slip joint in order to allow for slight movements due to vibrations and the like. Preferably adjacent the lower part of the lower portion 53 is a plurality of liquid intake passageways or ports 55, which may be screened, as with a sleeve 56 of suitable mesh (such as of suitable hardened interconnected plastic strands or of interconnected aluminum strands) and at the upper part of the lower portion 53 below the telescoping portions, there is provided a plurality of liquid exit passageways or ports 57 preferably of the same number and size as the ports 55, and spaced a substantially equal distance apart, this being a factor for the efficient operation of the apparatus. The sleeve 56 is adapted to prevent minnows or foreign solids from entering the ports 55. The housing portions 52 and 53 may be, for example, of aluminum or stainless steel tubing or the like. Disposed within the housing 51 is impeller means 60 which includes an elongated shaft 61 secured to which is a helical fin structure 62 which extends along the intermediate portion of the shaft 61 with its outer edge closely adjacent the inner face of the housing portion 53. At both ends of the structure 62 are discs 63 and 64 respectively, secured to the shaft 61, the peripheries of which discs are preferably closely adjacent the inner face of the housing portion 53. These discs may be of nylon. It will be noted that the structure 62 embodies a very gradual curve about the shaft 61. This is important, as I prefer to eliminate any speed reduction mechanism and the gradual curve provides enough lift so that there will be no violent spurt of liquid from the upper ports 57, which are adjacent the upper end of the structure 62. The lower ports 55 are equally adjacent the lower end of the same structure. Any suitable material may constitute the shaft 61 and structure 62, such as cast aluminum or stainless steel and the like. Also forming a part of the pump means 50 are the bearings 65 and 66 with the former within the upper part of housing portion 52



above the ports 57 and the latter within the lower part of this portion 52 below the ports 55. The shaft 61 extends through and upwardly of the bearing 65 while the lower end portion of the shaft is seated in a socket in the bearing 66. Both bearings are preferably of nylon, which requires no lubricant. Practically all lubricants would be detrimental to piscatorial life if the lubricants got into the liquid stream or liquid B. Still a part of the pump means 50 is coupling means 67 between the outer end portion of the shaft 42 and upper end portion of the shaft 61. I prefer to provide a flexible coupling 68 which may be of rubber or the like, having a central bore to receive these end portions of the shafts in a good frictional gripping relationship and is spaced from the housing wall, but not enough to permit water to get to the motor housing. Now, with reference to liquid discharge receiving and guiding means 70 for the liquid ejected from the ports 2,951,309 57, I provide a basinlike receptacle 71 with a central convex body portion 72 and a convex rim portion 73. This receptacle is of greater diameter and considerably deeper than the disc body 26, and has, a central opening 74 to receive a part of the housing portion 52 to which it is fixedly secured in any approved way. At the rim portion 73 there are provided a plurality of openings to receive portions of the elongated members 31. These portions extend through the openings at the juncture of the converging and vertical portions 34 and 32 of the members 31 and, as may be appreciated from Fig. 1, the converging portions 34 prevent any movement of the receptacle 71 downwardly. Conversely, the receptacle 71 provides braces for the members 31. It will be noted that the receptacle 71 joins the housing 51 somewhat below the plane of the ports 57 and that the convex rim portion 73 is above this plane and, when the apparatus is in use, the horizontal planes of the receptacle 71 should be as truly horizontal as possible so that the pumped liquid will fall as a thin sheet over the rim portion 73. As a part of the means 70, I prefer to provide an antisplash device or baffle which may comprise a flat plate or disc 75 secured to the housing 51, above the horizontal plane of the receptacle 71 and with its outer periphery adjacent the rim portion 73, substantially as shown in Fig. 1. I have discovered that the shape of the receptacle 71 and its position with relationship to the ports 57 prevents a violent discharge of liquid, as water, from the rim portion 73 against the wall 10 of the receptacle A. This would be detrimental for what I desire is aeration and cooling of the liquid and not mere agitation thereof. Splashing of the liquid against the wall 10 would tend to coat that wall, but the liquid would then lack the temperature to cool the body of liquid. The overflow of the liquid over the rim portion 73 is shown by the arrows in Fig. 1 where it reaches the liquid level 80. The receptacle 71 is preferably of a substantially rust proof material such as aluminum, or stainless steel. In the use of my apparatus C, after a suitable level of liquid B is provided in the receptacle A and the live bait, as minnows, introduced to the liquid B, the apparatus C is inserted, lower end first, until the upper support means 20 rests upon the top wall 12, whereupon the impeller-rotating means 40 can be set into operation. Because of the relatively very slim form of the liquid inserted portion of the apparatus, insertion is made easy, even without light and there is ample space for the minnows, or like fish, to swim about. There are no moving parts of the apparatus to come into contact with the fish. It was discovered that operation of the apparatus need be carried on for only a few minutes at a time. A conventional electric motor rotates its shaft about 3500 r.p.m. and this, since no reduction gearing is necessary, entails operation of 3 to 4 minutes every 30 minutes or so, employing a minnow bucket of ordinary size. In even hot weather, this 3 to 4 minute operation will lower the temperature of the water within a bucket by about 5° F. Various changes may be made to the forms of the invention herein shown and described, without departing from the spirit of the invention or scope of the following claims. What is claimed is: 1. Apparatus for aerating and cooling a body of liquid within a container having an upwardly-opening mouth and a wall extending about said mouth; said apparatus including support means for positioning above said mouth; liquid pumping means carried by said support 70 means for disposal in said body of liquid and spaced from said wall, said liquid pumping means including an upwardly-extending housing provided, adjacent its upper end portion, with a plurality of pumped liquid exit ports;

imperforate pumped liquid discharge-receiving and -disposed receptacle- 75 guiding means, including a horizontally

5 cle carried by said housing for positioning above the level of said body of liquid, said receptacle having a concave central portion adjoining said housing below the horizontal planes of said ports and surrounding a portion of said housing, and a convex outermost peripheral portion disposed above said planes, said concave central portion and said convex outermost peripheral portion forming a receptacle of sufficient depth for an accumulation of liquid therein to substantially cover said ports; and means operatively connected with said pump to operate said pump means for pumping said liquid upwardly through said housing and out of said exit ports. 2. Apparatus according to claim 1 characterized in that said support means includes a cover for said receptacle, provided with a plurality of air passageways opening to the interior of said container, a lower horizontally disposed support spaced below said cover and spaced from said container, and an elongated member connecting said cover and lower support, the lower end of said pump housing resting upon said lower support in juxtaposed spaced position within said container. 3. Apparatus according to claim 2 characterized in that said horizontally- disposed receptacle is provided with an opening and said elongated member extends through said opening in snug fit therein, whereby said receptacle and elongated member tend to brace one another. 4. Apparatus according to claim 2 characterized in that said horizontal- disposed receptacle is provided with an opening, and said elongated member extends substantially vertically through said opening, in a snug fit, and extends, from the lower mouth of said opening, toward the axial center of said lower support, whereby said elongated member provides a shoulder upon which said receptacle rests, whereby said receptacle and elongated member tend to brace one another. 5. Apparatus for aerating and cooling a body of liquid within a container having an upwardly-opening mouth and a wall extending about said mouth; said apparatus including support means for positioning above said mouth; liquid pumping means carried by said support means for disposal in said body of liquid and spaced from said wall, said liquid pumping means including an upwardly extending housing provided, adjacent its upper end portion, with a plurality of pumped liquid exit ports; imperforate pumped liquid discharge-receiving and guiding means, including a horizontally-disposed receptacle carried by said housing for positioning above the level of said body of liquid, said receptacle having a concave central portion adjoining said housing below the horizontal planes of said ports and surrounding a portion of said housing, and a convex outermost peripheral portion disposed above said planes, said concave central portion and said convex outermost peripheral portion forming a receptacle of sufficient depth for an accumulation of liquid therein to substantially cover said ports; said pumped liquid discharge-receiving and guiding means also including a circular plate carried by said housing, facing and spaced from said receptacle and extending with its periphery adjacent said convex outer peripheral portion of said receptacle; and means operatively connected with said pump to operate said pump means for pumping said liquid upwardly through said housing and out of said exit ports. 6. Apparatus for aerating and cooling a body of liquid within a minnow bucket having a top wall and an upwardly-opening mouth therein, said apparatus including support means having a support disc for disposal over said mouth and for being carried by said wall, said disc being provided with a plurality of air intake passageways for opening to the interior of said bucket, a concave disc spaced below and facing said support disc, of 23951,309 6 less diameter than the diameter of said support disc, and a plurality of spaced-apart elongated rigid members connected between said discs, each member having an upper substantially vertical portion and a lower portion extending toward the vertical axis of said concave disc, whereby, at the juncture of said two portions, a shoulder is provided; liquid pump means including a vertically- disposed telescopic tubular pump housing having a plurality of liquid intake ports adjacent its lower end and a plurality 10 of liquid outlet ports spaced above said intake ports and below said support disc, with the lower end portion of said housing seated upon said concave disc and said upper end portion connected to said support disc; imperforate pumped liquid

discharge-receiving and guiding 15 means, including a horizontally-disposed receptacle,- encircling a portion of said pump housing at a location below the horizontal planes of said exit ports and for positioning above the level of said body of liquid, said receptacle having a concave central portion surrounding 20 a portion of said pump housing and a convex outermost peripheral portion disposed above said planes and being supported upon the shoulders of said elongated rigid members, said concave central portion and said convex outermost peripheral portion forming a basin for an accumulation of liquid therein to substantially cover said ports; and means operatively connected to said pump means to operate said pump means for pumping said liquid from said intake ports, upwardly through said pump housing and out of said exit ports. 30 7. Apparatus according to claim 6 characterized in that said pumped liquid discharge-receiving and guiding means also includes a baffle plate carried by said housing, facing and spaced slightly above said receptacle and extending with the periphery of said baffle plate adjacent 35 said convex outer peripheral portion of said receptacle. 8. Apparatus for aerating and cooling a body of liquid within a container including liquid pumping means; support means for maintaining said liquid pumping means in juxtaposed relationship within said container and disposed in said body of liquid; said liquid pumping means including an upwardly extending housing having inlet and outlet ports adjacent the lowermost and uppermost ends respectively, and liquid impeller means mounted within said housing for raising the liquid within said 45 housing from said inlet ports to discharge from said outlet ports with a minimum of turbulence; and an imperforate plate mounted on said housing and disposed for positioning above the body of liquid in said container, 50 said imperforate plate having a concave central portion disposed below said outlet ports for receiving liquid therefrom, and a peripheral portion disposed above the horizontal plane of said outlet ports, so that liquid discharged from said outlet ports is emitted into a body of 55 liquid contained within said concave portion of said imperforate plate, minimizing any turbulence created by said impeller means, and the liquid is discharged from said imperforate plate over the peripheral portion thereof in a free-fall through air to said body of liquid, thus providing for natural cooling and aeration of said body 60 of liquid with minimum unnatural turbulence. . 9. Apparatus as specified in claim 8 wherein said liquid impeller means includes a shaft extending from adjacent said inlet ports to adjacent said outlet ports, and a helical blade mounted upon said shaft, said helical blade extending from adjacent said inlet ports to adjacent said outlet ports. References Cited in the file of this patent UNITED STATES PATENTS 70 2 137 397 Haldeman ----- Nov. 22, 1938 j,865:618 Abell ----- Dec. 23, 1958

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Drawings
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☐ 19. Document ID: US 2610480 A

L1: Entry 19 of 19

File: USOC

Sep 16, 1952

US-PAT-NO: 2610480

DOCUMENT-IDENTIFIER: US 2610480 A

TITLE: Mechanical refrigerating apparatus

DATE-ISSUED: September 16, 1952

US-CL-CURRENT: 62/193; 184/26, 210/318, 62/205, 62/317, 62/502, 62/513

DOCUMENT TEXT:

Sept. 16, 1952 R. G. BRISCOE 27610,480 MECHANICAL REFRIGERATING APP s Filed Oct.

12, 1949 2 SHEETS- SiieET I Ile ,5'2 'A j 1.9 IN VE NT OR. 51 - 1:s co e By ,4 77'0  
RV,-.v

Sept. 16, 1952 R. G. BRISCOE 2@610,480 MECHANICAL REFRIGERATING APPARATUS Filed

Oct. 12, 1949 2 SHEETS-SHEET 2 (@y ----- r--- ----- - - - - -  
- OZ - - - - - INVENTOR. BY A7-70,RIVL--Y

Patented Sept. 16-1952 21610 480 UNITED. @S@TATES PATENT OFFICE: 2,610,480  
MECHANICAL REFRIGERATING APPARATUS Robert G. Briscoe, Sulphur, Okla. Appli@ation  
October 12, 1949, Serial No. 120,987 2 Claims. (Cl. 62-117.7) 2 This invention  
relates to refrigerat.or units and the primary object of the invention is to  
provide a refrigerator unit adapted to be driven by 6 comparatively small motor  
since it does not have to start to function against strong head pressure.  
5 :Another object of the invention is to provide a refrigerator unit of the  
character indicated above adapted to be used in stationary systems as well as -on  
automotive velhicles or the like. A further object of th6.inventi dn is. to  
D:ro,@ide 10 a..r6frigerato r unit. bf the character-indicated above adapted to be  
driven by the motor of an automotiive vehicle. \*hen. said, motor runs at  
idling.s@eed. Another object of the invention is to provide 15 a refrigerator unit  
the operating pressure of which is not affected bY the speed at which the PUMP of  
the unit is run.. An.additional object of the invention is to pro- vilde a  
refrigerator unit AdApted to bb built iii an 11 exceptional small size a d at an  
exceptional low cost. Another,,obje ct of the inveiiltion is to provide a  
refrigerator: unit adapted, when used on an automotive vehilee,,to be placed  
entirely, with the 25 exception of the expansion coil and the blowers, unde,r the  
hobd of the vehicle. The invention consists in the details of con- struction and in  
t'he,combination and arrange- ment @of the seve@al parts of my improved refrig- 30  
erator units whereby certain advantages.are at- tained, as will be hereinafter more  
fully set forth. In order that my invention may be bettet un- derstoo d, I will now  
proceed to describe the same with reference to the accompanying drawings, 30-  
wherein, Figure 1 is a diagrainmatlcal layout of a re- frigerator unit in  
accordance with the present Invention; Flgure 2 is a view in section of a separator  
used 40 in connection with the refrigerating unit; Mgure 3 is a -view in @ection of  
a@ mixer for mixing the refrigerant with the carrier material; and Mgure 4 is a  
view in section taken on the line 45 4-4 in ]@figure 3. The refrigerator unit  
comprises a tank I 0 for a refrigerant such as 10reon or the like in con- densed  
form. A high pressure pipe line I I of comparatively, small.inside diameter leads  
from 50 the tank (O to a drier (2 and, if desired, a check valve 14 is inserted in  
the hikh pressurle pipe line I 1. Fliom the drier 12 a high pressure'pipe line I 5  
of the same inside diameter as the pipe line I I leads to an expansion ivalve 16  
connected with the 55 irilet end portion of an expansion coil, 17. The other end  
portion of.said coil is connected with a suction pipe line 18 havirig a larger  
inside diameter,than the expansion coil 17 and leading to a check valve 19. A pipe  
20 having the same diameter as the pipe line 18 connects the check valve 19 with a  
mixer 2 1, the outlet end portion of which extends into the inlet port 22 of a  
pump, 23 which is driven by a motor 24. While the dtawing shows a belt connection  
25,between the pump 23 and the motor 24 special attention is called to the fact  
that I do not wish to restrict myself to a belt drive but that any other suitable  
driving connection can be used. The high pressure pipe line I I leading to the  
drier 12 is disposed adjacent to the suction pipe ine 18 and the two pipe lines are  
taped or soldered to gether, as indicated at 26 and a portion of the high pressure  
pipe line I I is coiled about the.sue'tion pipe line I 8, as at 2 7. From the  
outlet I port 28 of the pump 23 a high pressure pipe line 29 of approximately the  
same inner diameter as the suction pipe 18 leads to a check valve 30 and a high  
pressure pipe 31 leads from said , check valve into a separator 32 which has a  
container C having a bottom 33 provided with an inlet port 34 through which the  
pipe 31 extends. The separator 32 has a lid 35 secured in position by bolts 36 or  
the like and provided with an outlet port 37 through which a high pressure pipe 38  
extends. Said pipe 38 has an inner diameter of approximately the same size as the  
high pressure pipe I I and leads to a condenser coil 39 from which a high pressuri@

pipe 40 leads to the refrigerant tank 10. The bottom 33 of the separator 32 is provided with a second outlet port 41 from which a drain pipe 42 of comparatively small diameter leads to the intake end portion of the mixer 21. This mixer - comprises an inner pipe 43 forming - a continuation of the suction pipe 20 and arranged coaxially inside an outer pipe 44 of a larger diameter. The inlet end of said outer pipe, that is the end from which the inner pipe 43 enters, is closed by a screw Plug 45 or the like provided with a centrally located hole 46 through which the inner pipe 43 extends. The serial drain-pipe 42 enters the outer pipe 44 through a hole 47 provided in the wall of said outer pipe adjacent to the inner end of the screw plug 45. A disk 48 fitting snugly in the outer pipe 44 has a centrally located hole 49 permitting the inner pipe 43 to extend therethrough and is arranged inside the outer pipe 44 approximately

3/4 of the entire length of said pipe. A plurality of perforations 50 such as slots or the like is provided in the disk 48. The inner pipe 43 is slightly shorter than the outer pipe 44, the outlet end portion of which extends into the inlet port 22 of the pump 23. The separator 32 comprises a peripheral wall 51 extending at right angles from the bottom 33 and provided at its end portion remote from the bottom with a flange 52 supporting the lid 35. A plurality of approximately hundred mesh screens 53 or the like are secured inside the separator and are spaced from the bottom 33. The high pressure pipe 31 extends through, said screens and a wad 54 of copper wool or the like - is forced into the end portion of said high pressure pipe 31. A filter 55 made from tautly stretched heavy felt or any other suitable material is provided inside the separator 32 next to the lid 35 and 20 a plurality of layers of a suitable oil proof, tight, pressed packing material 56 is also provided inside the separator 32 adjacent to the filter 55. The tank 10 and the pipe line 11 are filled with a liquid refrigerant such as Freon or the like and 25 the portion of the separator 32 next to the bottom 33, the drain pipe 42 and the outer pipe 44 of the mixer 21 is filled with a carrier - material such as castor oil or the like. The motor-24 is started driving the pump 23 which sucks expanded refrigerant from the expansion pipe 17 through the suction pipe 18, the valve 19 and the pipe 20 into inner pipe 43 of the mixer 21 and sucks also carrier material through the outer pipe 44 so that the refrigerant and the carrier 35 will be thoroughly mixed to form an emulsion when the refrigerant flows out of the inner pipe 43 and the carrier and the refrigerant, together enter the pump 23 which drives the mixture under high pressure through the high pressure pipe 40, the valve 30 and the high pressure pipe 31 into the separator 32. Inside the separator the mixture is driven against the oil proof packing material 56 which will permit the refrigerant to pass but will retain the carrier. The latter 45 passes through screens 53 so that clean carrier material will be contained in the bottom portion of the separator 32 from where it will return through the drain pipe 42 to the mixer 21. Under the high pressure of the pump 23 the refrigerant passes through the layers 56 of packing material and through the filter 55 into the high pressure pipe 38, the pipe 40 into tank 10 and the high pressure pipe line 11, through the drier 12, the pipe line 15, the expansion valve 16, 5 and the expansion coil 17 from where it is sucked through the suction pipe 18 as described above. In operation, it is first to be understood that the check valve 30 is to be employed only when the refrigerating system is installed on a car 60 or truck, due to the uneven running of the car or truck motor. However in household or like use, a relatively small electric motor is to be employed to drive the pump and, here, the check valve 30 will be dispensed with, or otherwise be provided with a relatively small orifice or bypass (not shown), in order that the carrier (oil), content of the refrigerant emulsion, within the pipe line 29-31, can drain back toward the inlet side of the pump 23, thus effecting an equalization of the pressure throughout the system to the check valve 19. Now, since the expansion valve 16 will pass only so much of the refrigerant emulsion, which is normally under 100 to 1,480 pounds pressure, any undue increase in the speed of the motor 24, driving the pump 23, will not affect a corresponding increase in the flow of the refrigerant emulsion through the system, but, with the

motor and pump idle, the carrier content of the refrigerant emulsion, within the pipe line 29-3 1, will back slowly therein toward the outlet side of the pump and effect the desired equalization of the pressure, as before stated. As the refrigerant agent passes through and leaves the expansion coil 17, its pressure reduces to from 28 to 30 pounds, so that, with the check valve 30 omitted, or provided with the aforesaid bypass, and the motor and pump idle, the pressure equalizes throughout the system, thus, a minimum pressure is imposed on the intake side of the pump, when it and the motor are started up. The above specification shows clearly that a refrigerator unit as embodied herein does require a by far smaller motor for actuating the unit than refrigerator units known heretofore since the refrigerator constructed in accordance with the present invention does not have to overcome a strong head pressure when being started. In, consequence the unit may be built-in a, much smaller size than units known heretofore affording a saving on material space and cost. I claim: 1 ' In a mechanical refrigerating apparatus, a refrigerating agent supply tank, a power driven pump, a mixer directly connected to the inlet port of the pump, a circuit leading from the lower end of the tank for supplying the refrigerating agent at low pressure to the mixer, a separator containing a supply of a suitable carrier for the refrigerating agent, a pipe line leading from the lower end of the separator for supplying the carrier to the mixer, a second pipe, line leading from, the outlet port of the pump for discharging the resultant refrigerating, emulsion to the separator, and still another pipe line leading from the top end of the separator for returning the refrigerating agent to the top of the tank as it is separated out from the carrier. 2. The invention as defined in claim 1, with a drier, an expansion valve and an expansion coil connected in the said circuit in the order named and in the direction of flow of the refrigerating agent from the tank to the mixer, a condenser coil connected in the said another pipe line between the separator and the tank, and check valves also connected in the circuit and the said second pipe line for regulating the flow of the refrigerating agent and the refrigerating emulsion. ROBERT G. BRISCOE. REFERENCES CITED The following references are of record in the file of this patent: UNITED STATES PATENTS Number Name Date 1,245,179 Bertsch ----- Nov. 6, 1917 11,280,765 Kramer ----- Oct. 8, 1918 1,951' 915 Kagi ----- Mar. 20, 1934 2,244,010 Johnson et al - ----- @June 31 1941 2,260,608 Cormack ----- @Oct. 28, 1941 2,461,342 Obrieter, Jr - - ----- Feb. 1 8, 1949 FOREIGN PATENTS Number Country Date 789,653 France ----- Nov. 4, 1935

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
"brisco, robert".in.	19

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## Hit List

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Bkwd Refs

Generate OACS

**Search Results** - Record(s) 1 through 10 of 19 returned.☐ 1. Document ID: US 20030154174 A1**Using default format because multiple data bases are involved.**

L1: Entry 1 of 19

File: PGPB

Aug 14, 2003

PGPUB-DOCUMENT-NUMBER: 20030154174  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030154174 A1

TITLE: Network charging

PUBLICATION-DATE: August 14, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Tassel, Jerome	Hadleigh		GB	
Briscoe, Robert J	Woodbridge		GB	

US-CL-CURRENT: 705/412

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 2. Document ID: US 20030044017 A1

L1: Entry 2 of 19

File: PGPB

Mar 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030044017  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030044017 A1

TITLE: Data distribution

PUBLICATION-DATE: March 6, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Briscoe, Robert John	Suffolk		GB	

APPL-NO: 10/ 019012 [PALM]  
DATE FILED: December 26, 2001

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
EP	99305870.0	1999EP-99305870.0	July 23, 1999

## PCT-DATA:

DATE-FILED	APPL-NO	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
Jul 20, 2001	PCT/GB00/02813				

INT-CL: [07] H04 L 9/00

US-CL-PUBLISHED: 380/277

US-CL-CURRENT: 380/277

REPRESENTATIVE-FIGURES: 1

## ABSTRACT:

In a data distribution system, data is divided into a number of application data units. A sequence of keys is generated systematically, and a different key is used to encrypt each data unit at the source. At the receivers, corresponding keys are generated and used to decrypt the data units to gain access to the data. The constructions used to generate the keys are such that an intrinsically limited subset of the entire sequence of keys is made available to the user by communicating a selected combination of one or more seed values.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. D.
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☐ 3. Document ID: US 6341273 B1

L1: Entry 3 of 19

File: USPT

Jan 22, 2002

US-PAT-NO: 6341273

DOCUMENT-IDENTIFIER: US 6341273 B1

TITLE: Electronic coin stick with potential for future added value

DATE-ISSUED: January 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J</u>	Suffolk			GB

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB		03

APPL-NO: 09/ 066337 [PALM]

DATE FILED: April 29, 1998



## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
EP	97302098	March 26, 1997

## PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/GB98/00883	March 23, 1998	WO98/43211	Oct 1, 1998	Apr 29, 1998	Apr 29, 1998

INT-CL: [07] G06 F 17/60, H04 K 1/00, H04 L 9/00

US-CL-ISSUED: 705/41; 705/39, 705/78, 713/176

US-CL-CURRENT: 705/41; 705/39, 705/78, 713/176

FIELD-OF-SEARCH: 713/176, 705/41, 705/39, 705/78

## PRIOR-ART-DISCLOSED:

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Security Protocols, International Workshop Proceedings, "NetCard--A Practical Electronic-Cash System" --1996, pp. 49-57, R. Anderson et al.

Security Protocols, International Workshop Proceedings, "PayWood and MicroMint" Two Simple Micropayment Schemes, 1996, pp. 68-87, Rivest et al.

Schneier, Bruce, Applied Cryptography, 1996, p. 53.\*

Pedersen, Torben P., "Electronic Payments of Small Amounts", Computer Science Department, Aarhus University.\*

Hauser, Ralf, Michael Steiner, Michael Waidner, "Micro-Payments based on iKP", Jan. 16, 1996, Information Technology Solutions Department, IBM Research Division.

ART-UNIT: 2132

PRIMARY-EXAMINER: Hayes; Gail

ASSISTANT-EXAMINER: Meislahn; Douglas J.

ATTY-AGENT-FIRM: Nixon & Vanderhye P.C.

ABSTRACT:

In a digital payment transactions system, a broker generates and stores a secret number. The broker then generates a chain of hash values by successive operations of a hash function, using the secret number as the starting value. The broker then issues to the user a digitally encoded value from some way down the chain of hash values. The user generates a coin stick which comprises a chain of hash values starting with the value communicated by the broker. Subsequently, the broker can transfer further value to the user, without generating a new coin stick, by communicating a digitally encoded value from the broker's hash chain which precedes the value originally communicated to the user.

26 Claims, 3 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachment	Claims	KWIC	Drawings
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☐ 4. Document ID: US 5031321 A

L1: Entry 4 of 19

File: USPT

Jul 16, 1991

US-PAT-NO: 5031321

DOCUMENT-IDENTIFIER: US 5031321 A

TITLE: Cleaving apparatus

DATE-ISSUED: July 16, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J.</u>	Woodbridge			GB2

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB2	03	

APPL-NO: 07/ 217067 [PALM]

DATE FILED: July 8, 1988

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	8626786	November 10, 1986
GB	8723794	October 9, 1987

PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/GB87/00786	November 5, 1987	WO88/03516	May 19, 1988	Jul 8, 1988	Jul 8, 1988

INT-CL: [05] B25F 3/00

US-CL-ISSUED: 30/134; 30/901

US-CL-CURRENT: 30/134; 225/96.5, 30/90.1FIELD-OF-SEARCH: 30/90.1, 30/90.2, 30/90.3, 30/90.4, 30/90.6, 30/90.7, 30/90.8,  
30/91.2, 30/92.5, 30/134

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>2459864</u>	January 1949	Bissett et al.	30/134

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0082897	July 1983	EP	
0089845	September 1983	EP	
0167313	January 1986	EP	
1519232	July 1978	GB	
2174085	October 1986	GB	

ART-UNIT: 326

PRIMARY-EXAMINER: Eley; Timothy V.

ASSISTANT-EXAMINER: Fridie, Jr.; Willmon

ATTY-AGENT-FIRM: Nixon &amp; Vanderhye

## ABSTRACT:

Apparatus for cleaving an optical fiber comprises two hand-operated pivoted jaws (11 and 12). The optical fiber (15) is supported along the lower jaw (12) and held by resilient clamps (24 and 27) on the upper jaw (11) when the jaws are closed. A blade (18) is resiliently coupled to the upper jaw on a parallelogram linkage (20) and protrudes beyond a stop member (21) by an amount substantially equal to the intended depth of intrusion of the blade into the fiber. Closure of the jaws brings the blade against the fiber which it scores to a depth limited by the stop member (21) on the upper jaw (11) bearing against the upper surface of the fiber (15), and by yielding of the blade (18). The resilient mounting (20) of the blade (18) is such that the maximum force which can be applied to the blade is the amount required to produce a score of the desired depth. Further closure of the jaws then applies a longitudinal tension to the fiber to produce cleaving.

22 Claims, 11 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Drawings
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☐ 5. Document ID: US D315664 S

L1: Entry 5 of 19

File: USPT

Mar 26, 1991

US-PAT-NO: D315664

DOCUMENT-IDENTIFIER: US D315664 S

TITLE: Cleaving unit primarily for optical fibres

DATE-ISSUED: March 26, 1991

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J.</u>	Woodbridge			GB2

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB2	03	

APPL-NO: 07/ 179005 [PALM]

DATE FILED: April 8, 1988

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	1045503	October 9, 1987

US-CL-ISSUED: D8/98

US-CL-CURRENT: D08/98

FIELD-OF-SEARCH: D8/DIG.8, D8/14, D8/25, D8/52, D8/98, 30/162, 30/293

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>D217801</u>	June 1970	Johnson et al.	D8/98
<u>D230560</u>	March 1974	McCall et al.	D8/98
<u>D287331</u>	December 1986	Monroe	D8/98
<u>D289883</u>	May 1987	Penaluna	D8/52
<u>D298210</u>	October 1988	Hutson et al.	D8/98
<u>D303917</u>	October 1989	Hatfield	D8/98 X

ART-UNIT: 293

PRIMARY-EXAMINER: Dunkins; Bruce W.

ASSISTANT-EXAMINER: Hannon; Monica

1 Claims, 6 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMC	Draw. De
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☐ 6. Document ID: US D308668 S

L1: Entry 6 of 19

File: USPT

Jun 19, 1990

US-PAT-NO: D308668

DOCUMENT-IDENTIFIER: US D308668 S

TITLE: Data communications terminal for deaf and/or deaf-blind persons

DATE-ISSUED: June 19, 1990

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J.</u>	Woodbridge			GB2
Claridge; Andrew M.	New Malden			GB2

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB2		03

APPL-NO: 07/ 222238 [PALM]

DATE FILED: July 21, 1988

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	1047844	January 21, 1988

US-CL-ISSUED: D14/100

US-CL-CURRENT: D14/391

FIELD-OF-SEARCH: D14/100-117, D13/32, D13/38, D18/1, D18/7, D18/11, D18/12, 340/700, 340/706, 340/711, 340/712, 341/22, 341/23, 200/5A, 200/5R, 200/6A, 200/6R, 235/145A, 235/145R, 273/148B, 400/473, 400/474, 400/479, 400/485, 400/489, 364/706-710

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>D257560</u>	November 1980	Jang	D14/100
<u>D287854</u>	January 1987	Crews	D14/100
<u>D291195</u>	August 1987	Shea	D14/100 X
<u>D301233</u>	May 1989	Briscoe	D14/100

<u>2532228</u>	November 1950	Hesh	400/485
<u>2972140</u>	February 1961	Hirsch	
<u>3230644</u>	January 1966	Irazoqui	
<u>3659354</u>	May 1972	Sutherland	
<u>3854131</u>	December 1974	Vanderheiden et al.	400/479 X
<u>4033053</u>	July 1977	Engler	
<u>4081068</u>	March 1978	Zapp	400/489 X
<u>4194190</u>	March 1980	Bareau	
<u>4303915</u>	December 1981	D'Angelo et al.	340/711
<u>4473356</u>	September 1984	Fernando et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2657064	1978	DE	
2702730	1978	DE	
810470	1981	FI	
1433924	1972	GB	
1439821	1973	GB	

## OTHER PUBLICATIONS

Popular Science-Mar. 1984, p. 162-Human Engineering Keyboard bottom right of page.  
 "Dialogos--An Aid for the Deaf-Blind," The Finnish Central Association of the  
 Visually Handicapped, Oct. 21, 1984.  
 "Piezoelectric Braille Module," J. V. Pike-IBM Technical Disclosure Bulletin, vol.  
 19, No. 4, Sep. 1976.

ART-UNIT: 291

PRIMARY-EXAMINER: Lucas; Susan J.

ASSISTANT-EXAMINER: Nunn; Freda S.

ATTY-AGENT-FIRM: Nixon &amp; Vanderhye

1 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawing
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☐ 7. Document ID: US D301233 S

L1: Entry 7 of 19

File: USPT

May 23, 1989

US-PAT-NO: D301233

DOCUMENT-IDENTIFIER: US D301233 S

TITLE: Data communications terminal for deaf and/or deaf-blind persons

DATE-ISSUED: May 23, 1989

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J.</u>	Woodbridge			GB2

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
British Telecommunications public limited company	London			GB2		03

APPL-NO: 06/ 875116 [PALM]

DATE FILED: April 1, 1986

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	1029620	October 3, 1985

US-CL-ISSUED: D14/100

US-CL-CURRENT: D14/391

FIELD-OF-SEARCH: D14/100-117, D18/12, D18/13, D18/18, D18/22, D13/40, D13/41, D13/32, D13/38, 400/473, 400/474, 400/479, 400/489, 400/485, 340/365R, 340/365VL

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>D249571</u>	September 1978	David et al.	D13/32 X
<u>D287854</u>	January 1987	Crews	D18/12 X
<u>2972140</u>	February 1961	Hirsch	
<u>3230644</u>	January 1966	Irazoqui	
<u>3659354</u>	May 1972	Sutherland	
<u>3945482</u>	March 1976	Einbinder	400/489 X
<u>4033053</u>	July 1977	Engler	
<u>4075621</u>	February 1978	Salmon	340/365R X
<u>4194190</u>	March 1980	Bareau	
<u>4201489</u>	May 1980	Zapp	400/485
<u>4333097</u>	June 1982	Buric et al.	340/365VL X
<u>4473356</u>	September 1984	Fernando et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2657064	July 1978	DE	400/489
2702730	July 1978	DE	340/365R
810470	February 1981	FI	400/489
1443924	July 1972	GB	
1439821	January 1973	GB	

2076743	December 1981	GB
2153568	August 1985	GB
0213022	March 1987	GB

## OTHER PUBLICATIONS

"Dialogos--An Aid for the Deaf-Blind," The Finnish Central Association of the Visually Handicapped, Oct. 21, 1984.  
"Piezoelectric Braille Module," J. V. Pike--IBM Technical Disclosure Bulletin, vol. 19, No. 4, Sep. 1976.  
Computer Weekly, May 11, 1978, p. 1-Personal Word Processor, top right corner.

ART-UNIT: 291

PRIMARY-EXAMINER: Lucas; Susan J.

ASSISTANT-EXAMINER: Nunn; Freda S.

ATTY-AGENT-FIRM: Nixon &amp; Vanderhye

1 Claims, 5 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KWC	Draw D
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☐ 8. Document ID: US 4601010 A

L1: Entry 8 of 19

File: USPT

Jul 15, 1986

US-PAT-NO: 4601010

DOCUMENT-IDENTIFIER: US 4601010 A

TITLE: Converter device for a computer terminal

DATE-ISSUED: July 15, 1986

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Briscoe; Robert J.</u>	Upton	MA	01568	

APPL-NO: 06/ 562712 [PALM]

DATE FILED: December 19, 1983

INT-CL: [04] G06F 1/00

US-CL-ISSUED: 364/900

US-CL-CURRENT: 345/23; 345/27

FIELD-OF-SEARCH: 364/9MSFile

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS



PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4424572</u>	January 1984	Lorig et al.	364/900

ART-UNIT: 232

PRIMARY-EXAMINER: Zache; Raulfe B.

ATTY-AGENT-FIRM: Kriegsman; Irving M.

## ABSTRACT:

A converter device which enables a computer terminal having text display capability only to be used for displaying either graphics or text and graphics simultaneously in addition to text is disclosed. The device connects in series between the video output port, of the terminal electronics section of the computer terminal and the video input port of the CRT electronics section of the computer terminal and in parallel with the RS232 port of the computer terminal to an external source of serial data signals and includes a microprocessor controlled relay which allows either video signals generated by the control electronics section of the computer terminal or internally generated video signals to be transmitted to the CRT electronics section, a fail-safe switch which allows the computer terminal to function normally in the event of a malfunction in the device, a data processing system having a microprocessor, a character generator read-only memory and video refresh memory section containing random access memory elements for storing graphic data and random access memory elements for storing ASCII code signals representative of characters and selection circuitry for selecting which memory elements should be outputted at a particular instant in time.

11 Claims, 14 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Search	Abstract	Claims	KMC	Draw. De
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☐ 9. Document ID: US 2951309 A

L1: Entry 9 of 19

File: USPT

Sep 6, 1960

US-PAT-NO: 2951309

DOCUMENT-IDENTIFIER: US 2951309 A

TITLE: Aerating and cooling apparatus for liquid containing receptacles

DATE-ISSUED: September 6, 1960

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>BRISCOE ROBERT G</u>				
WYNNEWOOD				

US-CL-CURRENT: 43/57; 261/121.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Search	Abstract	Claims	KMC	Draw. De
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☐ 10. Document ID: US 2610480 A

L1: Entry 10 of 19

File: USPT

Sep 16, 1952

US-PAT-NO: 2610480

DOCUMENT-IDENTIFIER: US 2610480 A

TITLE: Mechanical refrigerating apparatus

DATE-ISSUED: September 16, 1952

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
BRISCOE ROBERT G				

US-CL-CURRENT: 62/193; 184/26, 210/318, 62/205, 62/317, 62/502, 62/513

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Abstracts	Claims	KMC	Draw D
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☐ 11. Document ID: WO 3051014 A2

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L1: Entry 11 of 19

File: EPAB

Jun 19, 2003

PUB-NO: WO003051014A2

DOCUMENT-IDENTIFIER: WO 3051014 A2

TITLE: EVENT NOTIFICATION OVER A COMMUNICATIONS NETWORK

PUBN-DATE: June 19, 2003

INVENTOR-INFORMATION:

NAME	COUNTRY
GARYFALOS, ANARGYROS	GB
BURBRIDGE, TREVOR	GB
SOPPERA, ANDREA	GB
BRISCOE, ROBERT JOHN	GB

INT-CL (IPC): H04 L 29/06

Full	Title	Citation	Front	Review	Classification	Date	Reference	Examination	Publication	Claims	KWIC	Draw. Des
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☐ 12. Document ID: GB 2382281 A

L1: Entry 12 of 19

File: EPAB

May 21, 2003

PUB-NO: GB002382281A

DOCUMENT-IDENTIFIER: GB 2382281 A

TITLE: Authentication or network users

PUBN-DATE: May 21, 2003

INVENTOR-INFORMATION:

NAME	COUNTRY
SOPPERA, ANDREA	GB
BRISCOE, ROBERT JOHN	GB

ASSIGNEE-INFORMATION:

NAME	COUNTRY
BRITISH TELECOMM	GB

APPL-NO: GB00126617  
APPL-DATE: November 6, 2001

PRIORITY-DATA: GB00126617A (November 6, 2001)

INT-CL (IPC): H04 L 9/32; G06 F 1/00; H04 L 29/06  
EUR-CL (EPC): H04L029/06

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KWIC	Draw D
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☐ 13. Document ID: WO 9965183 A2

L1: Entry 13 of 19

File: EPAB

Dec 16, 1999

PUB-NO: WO009965183A2  
DOCUMENT-IDENTIFIER: WO 9965183 A2  
TITLE: COMMUNICATIONS NETWORK

PUBN-DATE: December 16, 1999

INVENTOR-INFORMATION:

NAME	COUNTRY
BRISCOE, ROBERT JOHN	GB
RIZZO, MICHAEL	GB

ASSIGNEE-INFORMATION:

NAME	COUNTRY
BRITISH TELECOMM	GB
BRISCOE ROBERT JOHN	GB
RIZZO MICHAEL	GB

APPL-NO: GB09901765  
APPL-DATE: June 4, 1999

PRIORITY-DATA: EP98309609A (November 24, 1998), GB09812161A (June 5, 1998),  
GB09825723A (November 24, 1998), GB09902052A (January 29, 1999), GB09902648A  
(February 5, 1999)

INT-CL (IPC): H04 L 12/00

ABSTRACT:

CHG DATE=20000202 STATUS=O>In a communications network, which may be a federated network such as the Internet, a tariff is distributed via the network to customer terminals. At each terminal a charge for use of the network is calculated by using the tariff. Different tariffs may be communicated for different services and a respective tariff may be varied depending upon the operational condition of the service. Different tariffs may be calculated for different customers and the tariffs may be varied in dependence upon the loading of network resources and

different tariffs may have different volatilities. Part of the traffic from a user to the network may be sampled and the status of the user may be amended when a discrepancy is detected between the sampled parameters and the contracted parameters in the user's contract.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 14. Document ID: WO 9933224 A1

L1: Entry 14 of 19

File: EPAB

Jul 1, 1999

PUB-NO: WO009933224A1  
DOCUMENT-IDENTIFIER: WO 9933224 A1  
TITLE: DATA COMMUNICATIONS

PUBN-DATE: July 1, 1999

INVENTOR-INFORMATION:

NAME	COUNTRY
FAIRMAN, IAN RALPH	GB
BRISCOE, ROBERT JOHN	GB

ASSIGNEE-INFORMATION:

NAME	COUNTRY
BRITISH TELECOMM	GB
FAIRMAN IAN RALPH	GB
BRISCOE ROBERT JOHN	GB

APPL-NO: GB09803755

APPL-DATE: December 15, 1998

PRIORITY-DATA: EP97310358A (December 19, 1997), EP98304429A (June 4, 1998),  
GB09726934A (December 19, 1997), GB09812060A (June 4, 1998)

INT-CL (IPC): H04 L 12/14; H04 L 29/06

EUR-CL (EPC): G06F001/00; G06F021/00, H04L009/08 , H04L012/18 , H04L029/06 ,  
H04L029/06 , H04L029/06

ABSTRACT:

CHG DATE=20031129 STATUS=C>In a data communications system a remote data source outputs data as a series of application data units (ADUs). Each ADU is individually encrypted with a different key. The keys are transmitted (for example using Internet multicasting) via a communications network to one or more customer terminals. At the terminals a sequence of keys is generated for use in decrypting the ADUs. A record is kept of the keys generated, and this record may subsequently be used to generate a receipt for the data received by the customer. The keys may be generated, and the record stored within a secure module such as a smartcard.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	KWIC	Draw D
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☐ 15. Document ID: WO 9843211 A1

L1: Entry 15 of 19

File: EPAB

Oct 1, 1998

PUB-NO: WO009843211A1

DOCUMENT-IDENTIFIER: WO 9843211 A1

TITLE: TRANSACTION SYSTEM

PUBN-DATE: October 1, 1998

## INVENTOR-INFORMATION:

NAME

COUNTRY

BRISCOE, ROBERT JOHN

GB

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

BRITISH TELECOMM

GB

BRISCOE ROBERT JOHN

GB

APPL-NO: GB09800883

APPL-DATE: March 23, 1998

PRIORITY-DATA: GB09800883W (March 23, 1998), EP97302098A (March 26, 1997)

INT-CL (IPC): G07 F 7/10

EUR-CL (EPC): G07F007/08; G07F007/10, G07F019/00

## ABSTRACT:

CHG DATE=19990905 STATUS=O>In a digital payment transactions system a broker generates and stores a secret number. The broker then generates a chain of hash values by successive operations of a hash function, using the secret number as the starting value. The broker then issues to the user a digitally encoded value from some way down the chain of hash values. The user generates a coin stick which comprises a chain of hash values starting with the value communicated by the broker. Subsequently, the broker can transfer further value to the user, without generating a new coin stick, by communicating a digitally encoded value from the broker's hash chain which precedes the value originally communicated to the user.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	KWIC	Draw D
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☐ 16. Document ID: WO 8906848 A1

L1: Entry 16 of 19

File: EPAB

Jul 27, 1989

PUB-NO: WO008906848A1

DOCUMENT-IDENTIFIER: WO 8906848 A1

TITLE: ELECTRONIC VIBRATIONAL DISPLAY

PUBN-DATE: July 27, 1989

## INVENTOR-INFORMATION:

NAME	COUNTRY
BRISCOE, ROBERT JOHN	GB

## ASSIGNEE-INFORMATION:

NAME	COUNTRY
BRITISH TELECOMM	GB

APPL-NO: GB08900045

APPL-DATE: January 20, 1989

PRIORITY-DATA: GB08801309A (January 21, 1988)

US-CL-CURRENT: 434/112

INT-CL (IPC): G09B 21/00

EUR-CL (EPC): G09B021/00

## ABSTRACT:

An electronic vibrational display unit comprises a casing (2) which supports six separately-energisable vibrational transducers (9). Each transducer (9) is associated with a respective display element (3) mounted in the casing (2). Each of the display elements (3) comprises a sender (3b) arranged to vibrate with the respective transducer (9) and a surround (3a) having an exposed surface large enough to accommodate a fingertip. The exposed surface of each surround (3a) has an aperture (3c) through which the tip of the associated sender (3b) is accessible to the fingertip. The arrangement is such as to enable a user to contact the exposed tip of each of the senders (3b) with a fingertip whilst resting that fingertip on the respective surround (3a). The display elements (3) are mounted in the casing (2) in such a manner that substantially the entire vibrational energy of a given transducer (9) is prevented from being transmitted via the casing to any other display element.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 17. Document ID: EP 267744 A1

L1: Entry 17 of 19

File: EPAB

May 18, 1988

PUB-NO: EP000267744A1

DOCUMENT-IDENTIFIER: EP 267744 A1

TITLE: Cleaving apparatus.

PUBN-DATE: May 18, 1988

## INVENTOR-INFORMATION:

NAME	COUNTRY
BRISCOE, ROBERT JOHN	

## ASSIGNEE-INFORMATION: